

TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL MOS TYPE (L²-π-MOS V)

2SK2614

HIGH SPEED, HIGH CURRENT SWITCHING APPLICATIONS

CHOPPER REGULATOR, DC-DC CONVERTER AND MOTOR DRIVE
APPLICATIONS

- 4V Gate Drive
- Low Drain-Source ON Resistance : $R_{DS(ON)} = 0.032\Omega$ (Typ.)
- High Forward Transfer Admittance : $|Y_{fs}| = 8S$ (Typ.)
- Low Leakage Current : $I_{DSS} = 100\mu A$ (Max.)
($V_{DS} = 50V$)
- Enhancement-Mode : $V_{th} = 0.8 \sim 2.0V$
($V_{DS} = 10V$, $I_D = 1mA$)

MAXIMUM RATINGS ($T_a = 25^\circ C$)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Drain-Source Voltage	V_{DSS}	50	V
Drain-Gate Voltage ($R_{GS} = 20k\Omega$)	V_{DGR}	50	V
Gate-Source Voltage	V_{GSS}	± 20	V
Drain Current	DC I_D	20	A
	Pulse I_{DP}	50	
Drain Power Dissipation ($T_c = 25^\circ C$)	P_D	40	W
Channel Temperature	T_{ch}	150	$^\circ C$
Storage Temperature Range	T_{stg}	$-55 \sim 150$	$^\circ C$

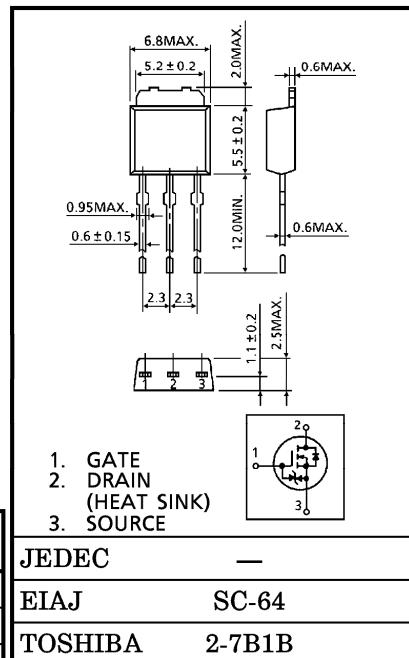
THERMAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	MAX.	UNIT
Thermal Resistance, Channel to Case	$R_{th}(ch-c)$	3.125	$^\circ C / W$
Thermal Resistance, Channel to Ambient	$R_{th}(ch-a)$	125	$^\circ C / W$

This transistor is an electrostatic sensitive device.
Please handle with caution.

INDUSTRIAL APPLICATIONS

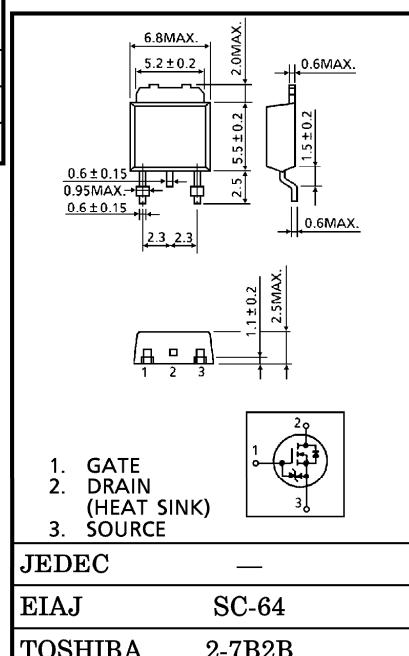
Unit in mm



JEDEC

EIAJ SC-64

TOSHIBA 2-7B1B



JEDEC

EIAJ SC-64

TOSHIBA 2-7B2B

Weight : 0.36g

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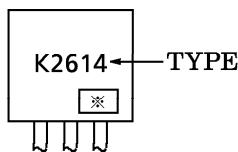
ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Gate Leakage Current	I_{GSS}	$V_{GS} = \pm 16\text{V}, V_{DS} = 0\text{V}$	—	—	± 10	μA	
Drain Cut-off Current	I_{DSS}	$V_{DS} = 50\text{V}, V_{GS} = 0\text{V}$	—	—	100	μA	
Drain-Source Breakdown Voltage	$V_{(\text{BR})\text{DSS}}$	$I_D = 10\text{mA}, V_{GS} = 0\text{V}$	50	—	—	V	
Gate Threshold Voltage	V_{th}	$V_{DS} = 10\text{V}, I_D = 1\text{mA}$	0.8	—	2.0	V	
Drain-Source ON Resistance	$R_{DS(\text{ON})}$	$V_{GS} = 4\text{V}, I_D = 5\text{A}$ $V_{GS} = 10\text{V}, I_D = 10\text{A}$	—	0.055 0.032	0.08 0.046	Ω	
Forward Transfer Admittance	$ Y_{fs} $	$V_{DS} = 10\text{V}, I_D = 10\text{A}$	7	13	—	S	
Input Capacitance	C_{iss}	$V_{DS} = 10\text{V}, V_{GS} = 0\text{V}, f = 1\text{MHz}$	—	900	—	pF	
Reverse Transfer Capacitance	C_{rss}		—	130	—		
Output Capacitance	C_{oss}		—	370	—		
Switching Time	Rise Time	t_r		—	15	—	ns
	Turn-on Time	t_{on}		—	25	—	
	Fall Time	t_f		—	30	—	
	Turn-off Time	t_{off}		—	100	—	
Total Gate Charge (Gate-Source Plus Gate-Drain)	Q_g	$V_{DD} = 40\text{V}, V_{GS} = 10\text{V}, I_D = 20\text{A}$	—	25	—	nC	
Gate-Source Charge	Q_{gs}		—	19	—		
Gate-Drain ("Miller") Charge	Q_{gd}		—	6	—		

SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Continuous Drain Reverse Current	I_{DR}	—	—	—	20	A
Pulse Drain Reverse Current	I_{DRP}	—	—	—	50	A
Diode Forward Voltage	V_{DSF}	$I_{DR} = 20\text{A}, V_{GS} = 0\text{V}$	—	—	-1.7	V
Reverse Recovery Time	t_{rr}	$I_{DR} = 20\text{A}, V_{GS} = 0\text{V}$	—	60	—	ns
Reverse Recovery Charge	Q_{rr}	$dI_{DR}/dt = 50\text{A}/\mu\text{s}$	—	45	—	μC

MARKING



※ Lot Number

□ □ — Month (Starting from Alphabet A)

□ — Year (Last Number of the Christian Era)